



Aalto University
School of Science

CS-E4640: Advanced Topics in Software Systems

Performance Monitoring

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Motivation

How to monitor the systems and applications?

Machine Learning Applications and Systems

Where do our data come from?

Prometheus

- ◆ Monitoring system
- ◆ More than a time series database
- ◆ Supporting the collection of application and system data

Open Source

Major Components

◆ Exporter

◆ Pushgateway

◆ Client libraries

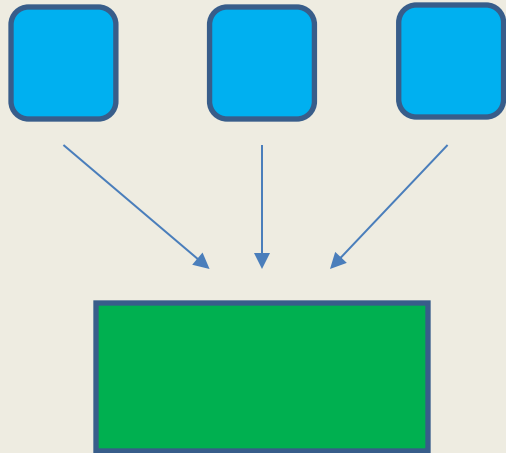
- Go, Java, Python, and Ruby.

- Third-party for C#/.Net, Node.js, Haskell, Erlang and Rust

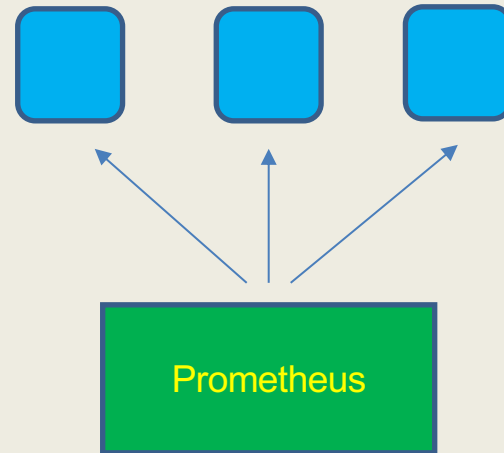
More ...

Operation

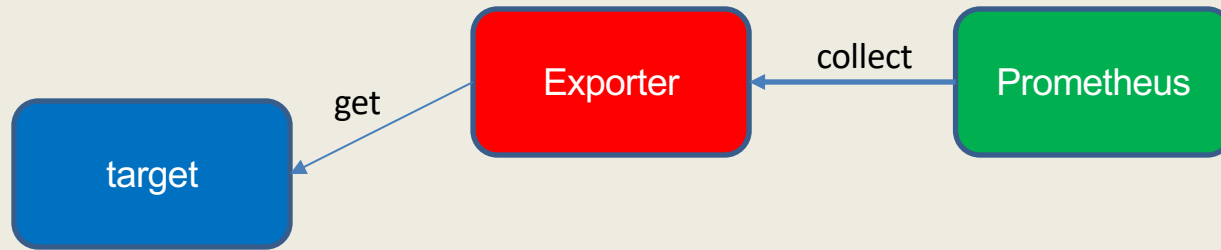
Push



Pull



Exporter



Pushgateway



Instrumentation

Client libraries: Java, Go, Python, Ruby.

Third-party libraries: C#/.Net, Node.js, Erlange, etc

Python

```
import http.server
from prometheus_client import start_http_server
from prometheus_client import Counter

REQUESTS = Counter('hello_worlds_total', 'Hello Worlds requested.')

class MyHandler(http.server.BaseHTTPRequestHandler):
    def do_GET(self):
        REQUESTS.inc()
        self.send_response(200)
        self.end_headers()
        self.wfile.write(b"Hello World")

if __name__ == "__main__":
    start_http_server(8000)
    server = http.server.HTTPServer(('localhost', 8001), MyHandler)
    server.serve_forever()
```



```
port http.server
from prometheus_client import start_http_server
from prometheus_client import Counter

REQUESTS = Counter('hello_worlds_total', 'Hello Worlds requested.')

class MyHandler(http.server.BaseHTTPRequestHandler):
    def do_GET(self):
        REQUESTS.inc()
        self.send_response(200)
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        self.wfile.write(b"Hello World")

if __name__ == "__main__":
    start_http_server(8000)
    server = http.server.HTTPServer(('localhost', 8001), MyHandler)
    server.serve_forever()
```

Your Project

Enjoy monitoring your applications